Patent claims

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- Process for the preparation of non-chiral or optically active alcohols in which
 a carbonyl compound is reacted with hydrogen in the presence of a catalyst, a
 base and optionally a diamine, characterized in that the catalyst used is an
 Ru(II) complex which contains both a support-bonded bisphosphine ligand
 and also a diamine ligand.
- 2. Process according to Claim 1, characterized in that the catalyst is formed in situ from a support-bonded precursor and a diamine.
 - Process according to Claim 1, characterized in that a catalyst is used which
 contains both a chirally uniform, support-honded bisphosphine ligand and
 also a chirally uniform diamine ligand.
 - 4. Process according to Claim 3, characterized in that an atropisomeric bisphosphine ligand is present in the catalyst.
 - Ru(II) complex catalyst, characterized in that the Ru complex contains a support-bonded bisphosphine ligand and a diamine ligand.
 - 6. Ru(II) complex catalyst, characterized in that the Ru catalyst has been obtained by linking an inorganic support containing SH groups with a bisphosphine (derivative) capable of polymerization.
 - 7. Compounds of the formulae M^1 , M^2 , M^3 , M^4 , M^5 , M^6 , M^7 , M^8 , M^9 , $M^{9'}$, M^{10} and $M^{10'}$,

$$R_{2}^{1}$$
 $CO-X-(CH_{2})n-O$ $P(O)_{m}R_{2}$ $P(O)_{m}R_{2}$ M^{1}

$$R^{1}O$$
 $P(O)_{n}R_{2}$
 HO
 $P(O)_{n}R_{2}$

$$R_{2}(O)_{n}P$$
 OR^{1}
 $R_{2}(O)_{n}P$
 $O-CH_{2}-CH_{2}OF$

$$R_{2}(O)_{n}P$$
 OR^{1}
 $R_{2}(O)_{n}P$
 $O-CH_{2}-CR^{2}-OH$

$$R_{2}(O)_{n}P$$
 $O=CH_{2}$
 $CH_{2}O-CO$
 $CR^{\frac{3}{2}}CH_{2}$
 M^{5}

$$R_{2}(O)_{n}P$$
 OR^{1}
 $R_{2}(O)_{n}P$
 $O-(CH_{2}-CH_{2}O)_{m}H$
 M^{6}

$$R_{2}(O)_{n}P$$
 OR^{1}
 $R_{2}(O)_{n}P$
 $O-(CH_{2}-CH_{2}O)_{m}-CO-CR^{3}-CH_{2}$
 M^{7}

$$R_{2}(O)_{n}P$$
 OR^{1}
 $R_{2}(O)_{n}P$
 $O-CH_{2}-CR_{2}-NH-CO-CR_{3}-CH_{2}$
 M^{8}

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wherein independently of one another each

R is phenyl, 2- or 3- or 4-methylphenyl, 3,5-dimethylphenyl, 3,5-dimethylphenyl, 3,5-dimethylphenyl, 3,5-dimethylphenyl or cyclohexyl, and

 R^1 and R^2 are in each case, independently of one another, C_1 - to C_8 -(cyclo)alkyl and

15 R³ is H or CH₃, and

n is 1 or zero, and

m is 2-100.